

Apex Labs

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Tuesday, December 12, 2017

Rob Ede
Hahn and Associates
434 NW 6th Ave. Suite 203
Portland, OR 97209

RE: Siltronic RI-Doane Creek / 5237-10dc

Enclosed are the results of analyses for work order A6C1134, which was received by the laboratory on 3/31/2016 at 10:10:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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Philip Nerenberg, Lab Director

Hahn and Associates

434 NW 6th Ave. Suite 203
Portland, OR 97209

Project: **Siltronic RI-Doane Creek**

Project Number: 5237-10dc
Project Manager: Rob Ede


Reported:
12/12/17 08:59

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
5237-160330-DC-EMB033	A6C1134-02	Soil	03/30/16 11:00	03/31/16 10:10
5237-160330-DC-EMB032	A6C1134-04	Soil	03/30/16 11:40	03/31/16 10:10
5237-160330-DC-EMB029	A6C1134-06	Soil	03/30/16 12:15	03/31/16 10:10
5237-160330-DC-EMB028	A6C1134-08	Soil	03/30/16 13:00	03/31/16 10:10
5237-160330-DC-EMB056	A6C1134-10	Soil	03/30/16 14:15	03/31/16 10:10
5237-160330-DC-EMB055	A6C1134-12	Soil	03/30/16 14:16	03/31/16 10:10
5237-160330-DC-EMB051	A6C1134-14	Soil	03/30/16 15:00	03/31/16 10:10
5237-160330-DC-EMB050	A6C1134-16	Soil	03/30/16 15:30	03/31/16 10:10
5237-160330-DC-EMB035	A6C1134-18	Soil	03/30/16 16:00	03/31/16 10:10
5237-160330-DC-EMB035D	A6C1134-20	Soil	03/30/16 16:10	03/31/16 10:10

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ANALYTICAL CASE NARRATIVE

Work Order: A6C1134

This report is an addendum to Amended Report Revision 2 from the same work order number.

Philip Nerenberg
Lab Director
12/12/17

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Project: Siltronic RI-Doane Creek

Project Number: 5237-10dc
 Project Manager: Rob Ede

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ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
5237-160330-DC-EMB033 (A6C1134-02RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	52.0	1.84	3.70	ug/kg dry	1	04/08/16 17:13	EPA 8270D	
Perylene	19.1	1.84	3.70	"	"	"	"	
5237-160330-DC-EMB032 (A6C1134-04RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	95.5	1.81	3.63	ug/kg dry	1	04/08/16 17:51	EPA 8270D	
Perylene	35.0	1.81	3.63	"	"	"	"	
5237-160330-DC-EMB029 (A6C1134-06)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	267	7.19	14.4	ug/kg dry	4	04/05/16 16:34	EPA 8270D	
Perylene	106	7.19	14.4	"	"	"	"	
5237-160330-DC-EMB028 (A6C1134-08RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	93.1	1.81	3.64	ug/kg dry	1	04/08/16 18:28	EPA 8270D	
Perylene	37.6	1.81	3.64	"	"	"	"	
5237-160330-DC-EMB056 (A6C1134-10RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	324	7.24	14.5	ug/kg dry	4	04/05/16 15:57	EPA 8270D	
Perylene	134	7.24	14.5	"	"	"	"	
5237-160330-DC-EMB055 (A6C1134-12)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	130	7.20	14.5	ug/kg dry	4	04/05/16 17:57	EPA 8270D	
Perylene	52.4	7.20	14.5	"	"	"	"	
5237-160330-DC-EMB051 (A6C1134-14RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	102	1.84	3.70	ug/kg dry	1	04/08/16 19:43	EPA 8270D	
Perylene	41.6	1.84	3.70	"	"	"	"	
5237-160330-DC-EMB050 (A6C1134-16RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	754	7.49	15.0	ug/kg dry	4	04/05/16 15:20	EPA 8270D	
Perylene	304	7.49	15.0	"	"	"	"	
5237-160330-DC-EMB035 (A6C1134-18RE1)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	72.0	1.77	3.55	ug/kg dry	1	04/08/16 19:05	EPA 8270D	
Perylene	27.7	1.77	3.55	"	"	"	"	
5237-160330-DC-EMB035D (A6C1134-20)			Matrix: Soil		Batch: 6031018			
Benzo(e)pyrene	195	7.21	14.5	ug/kg dry	4	04/05/16 17:14	EPA 8270D	
Perylene	77.0	7.21	14.5	"	"	"	"	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546						Soil						
Blank (6031018-BLK1)						Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:08						
EPA 8270D												
Acenaphthene	ND	1.25	2.50	ug/kg wet	1	---	---	---	---	---	---	---
Acenaphthylene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Anthracene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Benz(a)anthracene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Benzo(a)pyrene	ND	1.87	3.75	"	"	---	---	---	---	---	---	---
Benzo(b)fluoranthene	ND	1.87	3.75	"	"	---	---	---	---	---	---	---
Benzo(k)fluoranthene	ND	1.87	3.75	"	"	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Chrysene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Fluoranthene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Fluorene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
1-Methylnaphthalene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
2-Methylnaphthalene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Naphthalene	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
Phenanthrene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Pyrene	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
Carbazole	ND	1.87	3.75	"	"	---	---	---	---	---	---	---
Dibenzofuran	ND	1.25	2.50	"	"	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	ND	12.5	25.0	"	"	---	---	---	---	---	---	---
2-Chlorophenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	---
2,4-Dichlorophenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	---
2,4-Dimethylphenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	---
2,4-Dinitrophenol	ND	31.2	62.5	"	"	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	ND	31.2	62.5	"	"	---	---	---	---	---	---	---
2-Methylphenol	ND	3.12	6.25	"	"	---	---	---	---	---	---	---
3+4-Methylphenol(s)	ND	3.12	6.25	"	"	---	---	---	---	---	---	---
2-Nitrophenol	ND	12.5	25.0	"	"	---	---	---	---	---	---	---
4-Nitrophenol	ND	12.5	25.0	"	"	---	---	---	---	---	---	---
Pentachlorophenol (PCP)	ND	12.5	25.0	"	"	---	---	---	---	---	---	---
Phenol	ND	2.50	5.00	"	"	---	---	---	---	---	---	---
2,3,4,6-Tetrachlorophenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	---
2,3,5,6-Tetrachlorophenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	---

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Project: **Siltronic RI-Doane Creek**

Project Number: 5237-10dc
 Project Manager: Rob Ede

Reported:
 12/12/17 08:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546						Soil						
Blank (6031018-BLK1)						Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:08						
EPA 8270D												
2,4,5-Trichlorophenol	ND	6.25	12.5	ug/kg wet	"	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.25	12.5	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	18.7	37.5	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	12.5	25.0	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	12.5	25.0	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	12.5	25.0	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	12.5	25.0	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	12.5	25.0	"	"	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.12	6.25	"	"	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.12	6.25	"	"	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Bis(2-Chloroisopropyl) ether	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.25	2.50	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.25	12.5	"	"	---	---	---	---	---	---	
Hexachloroethane	ND	3.12	6.25	"	"	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.25	2.50	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.12	6.25	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.12	6.25	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.12	6.25	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.12	6.25	"	"	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.12	6.25	"	"	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Aniline	ND	6.25	12.5	"	"	---	---	---	---	---	---	
4-Chloroaniline	ND	3.12	6.25	"	"	---	---	---	---	---	---	
2-Nitroaniline	ND	25.0	50.0	"	"	---	---	---	---	---	---	
3-Nitroaniline	ND	25.0	50.0	"	"	---	---	---	---	---	---	
4-Nitroaniline	ND	25.0	50.0	"	"	---	---	---	---	---	---	
Nitrobenzene	ND	12.5	25.0	"	"	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	12.5	25.0	"	"	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	12.5	25.0	"	"	---	---	---	---	---	---	
Benzoic acid	ND	157	312	"	"	---	---	---	---	---	---	

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Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546												
Soil												
Blank (6031018-BLK1)												
Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:08												
EPA 8270D												
Benzyl alcohol	ND	6.25	12.5	ug/kg wet	"	---	---	---	---	---	---	
Isophorone	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	3.12	6.25	"	"	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	31.2	62.5	"	"	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	12.5	25.0	"	"	---	---	---	---	---	---	
1,2-Dinitrobenzene	ND	31.2	62.5	"	"	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	31.2	62.5	"	"	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	31.2	62.5	"	"	---	---	---	---	---	---	
Pyridine	ND	6.25	12.5	"	"	---	---	---	---	---	---	
Benzo(e)pyrene	ND	1.25	2.50	"	"	---	---	---	---	---	---	
Perylene	ND	1.25	2.50	"	"	---	---	---	---	---	---	

<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>Recovery: 85 %</i>	<i>Limits: 37-122 %</i>	<i>Dilution: 1x</i>
<i>2-Fluorobiphenyl (Surr)</i>	<i>75 %</i>	<i>44-115 %</i>	<i>"</i>
<i>Phenol-d6 (Surr)</i>	<i>74 %</i>	<i>33-122 %</i>	<i>"</i>
<i>p-Terphenyl-d14 (Surr)</i>	<i>104 %</i>	<i>54-127 %</i>	<i>"</i>
<i>2-Fluorophenol (Surr)</i>	<i>71 %</i>	<i>35-115 %</i>	<i>"</i>
<i>2,4,6-Tribromophenol (Surr)</i>	<i>72 %</i>	<i>39-132 %</i>	<i>"</i>

LCS (6031018-BS1)

Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:45

EPA 8270D												
Acenaphthene	509	1.33	2.67	ug/kg wet	1	533	---	95	40-122%	---	---	
Acenaphthylene	483	1.33	2.67	"	"	"	---	91	32-132%	---	---	
Anthracene	518	1.33	2.67	"	"	"	---	97	47-123%	---	---	
Benz(a)anthracene	534	1.33	2.67	"	"	"	---	100	49-126%	---	---	
Benzo(a)pyrene	532	2.00	4.00	"	"	"	---	100	45-129%	---	---	
Benzo(b)fluoranthene	591	2.00	4.00	"	"	"	---	111	45-132%	---	---	
Benzo(k)fluoranthene	552	2.00	4.00	"	"	"	---	104	47-132%	---	---	
Benzo(g,h,i)perylene	546	1.33	2.67	"	"	"	---	102	43-134%	---	---	
Chrysene	540	1.33	2.67	"	"	"	---	101	50-124%	---	---	
Dibenz(a,h)anthracene	519	1.33	2.67	"	"	"	---	97	45-134%	---	---	
Fluoranthene	549	1.33	2.67	"	"	"	---	103	50-127%	---	---	
Fluorene	526	1.33	2.67	"	"	"	---	99	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	507	1.33	2.67	"	"	"	---	95	45-133%	---	---	
1-Methylnaphthalene	518	2.67	5.33	"	"	"	---	97	40-120%	---	---	
2-Methylnaphthalene	515	2.67	5.33	"	"	"	---	97	38-122%	---	---	

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Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546						Soil						
LCS (6031018-BS1)						Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:45						
EPA 8270D												
Naphthalene	485	2.67	5.33	ug/kg wet	"	"	---	91	35-123%	---	---	
Phenanthrene	502	1.33	2.67	"	"	"	---	94	50-121%	---	---	
Pyrene	537	1.33	2.67	"	"	"	---	101	47-127%	---	---	
Carbazole	518	2.00	4.00	"	"	"	---	97	50-122%	---	---	
Dibenzofuran	504	1.33	2.67	"	"	"	---	94	44-120%	---	---	
4-Chloro-3-methylphenol	573	13.3	26.7	"	"	"	---	107	45-122%	---	---	
2-Chlorophenol	553	6.67	13.3	"	"	"	---	104	34-121%	---	---	
2,4-Dichlorophenol	559	6.67	13.3	"	"	"	---	105	40-122%	---	---	
2,4-Dimethylphenol	569	6.67	13.3	"	"	"	---	107	30-127%	---	---	
2,4-Dinitrophenol	466	33.3	66.7	"	"	"	---	87	5-137%	---	---	
4,6-Dinitro-2-methylphenol	489	33.3	66.7	"	"	"	---	92	29-132%	---	---	
2-Methylphenol	616	3.33	6.67	"	"	"	---	116	32-122%	---	---	
3+4-Methylphenol(s)	650	3.33	6.67	"	"	"	---	122	34-120%	---	---	Q-29
2-Nitrophenol	502	13.3	26.7	"	"	"	---	94	36-123%	---	---	
4-Nitrophenol	504	13.3	26.7	"	"	"	---	95	30-132%	---	---	
Pentachlorophenol (PCP)	515	13.3	26.7	"	"	"	---	97	25-133%	---	---	
Phenol	584	2.67	5.33	"	"	"	---	109	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	519	6.67	13.3	"	"	"	---	97	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	507	6.67	13.3	"	"	"	---	95	40-120%	---	---	
2,4,5-Trichlorophenol	521	6.67	13.3	"	"	"	---	98	41-124%	---	---	
2,4,6-Trichlorophenol	504	6.67	13.3	"	"	"	---	94	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	562	20.0	40.0	"	"	"	---	105	51-133%	---	---	
Butyl benzyl phthalate	576	13.3	26.7	"	"	"	---	108	48-132%	---	---	
Diethylphthalate	526	13.3	26.7	"	"	"	---	99	50-124%	---	---	
Dimethylphthalate	514	13.3	26.7	"	"	"	---	96	48-124%	---	---	
Di-n-butylphthalate	550	13.3	26.7	"	"	"	---	103	51-128%	---	---	
Di-n-octyl phthalate	567	13.3	26.7	"	"	"	---	106	44-140%	---	---	
N-Nitrosodimethylamine	515	3.33	6.67	"	"	"	---	97	23-120%	---	---	
N-Nitroso-di-n-propylamine	607	3.33	6.67	"	"	"	---	114	36-120%	---	---	
N-Nitrosodiphenylamine	531	3.33	6.67	"	"	"	---	100	38-127%	---	---	
Bis(2-Chloroethoxy) methane	507	3.33	6.67	"	"	"	---	95	36-121%	---	---	
Bis(2-Chloroethyl) ether	524	3.33	6.67	"	"	"	---	98	31-120%	---	---	
Bis(2-Chloroisopropyl) ether	490	3.33	6.67	"	"	"	---	92	33-131%	---	---	
Hexachlorobenzene	499	1.33	2.67	"	"	"	---	94	44-122%	---	---	

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Philip Nerenberg, Lab Director

Hahn and Associates

434 NW 6th Ave. Suite 203
 Portland, OR 97209

Project: **Siltronic RI-Doane Creek**

Project Number: 5237-10dc
 Project Manager: Rob Ede

Reported:
 12/12/17 08:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546						Soil						
LCS (6031018-BS1)						Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:45						
EPA 8270D												
Hexachlorobutadiene	474	3.33	6.67	ug/kg wet	"	"	---	89	32-123%	---	---	
Hexachlorocyclopentadiene	451	6.67	13.3	"	"	"	---	84	5-140%	---	---	
Hexachloroethane	481	3.33	6.67	"	"	"	---	90	28-120%	---	---	
2-Chloronaphthalene	480	1.33	2.67	"	"	"	---	90	41-120%	---	---	
1,2-Dichlorobenzene	473	3.33	6.67	"	"	"	---	89	33-120%	---	---	
1,3-Dichlorobenzene	464	3.33	6.67	"	"	"	---	87	30-120%	---	---	
1,4-Dichlorobenzene	469	3.33	6.67	"	"	"	---	88	31-120%	---	---	
1,2,4-Trichlorobenzene	472	3.33	6.67	"	"	"	---	89	34-120%	---	---	
4-Bromophenyl phenyl ether	529	3.33	6.67	"	"	"	---	99	46-124%	---	---	
4-Chlorophenyl phenyl ether	530	3.33	6.67	"	"	"	---	99	45-121%	---	---	
Aniline	498	6.67	13.3	"	"	"	---	93	7-120%	---	---	
4-Chloroaniline	310	3.33	6.67	"	"	"	---	58	16-120%	---	---	
2-Nitroaniline	505	26.7	53.3	"	"	"	---	95	44-127%	---	---	
3-Nitroaniline	431	26.7	53.3	"	"	"	---	81	33-120%	---	---	
4-Nitroaniline	502	26.7	53.3	"	"	"	---	94	35-120%	---	---	
Nitrobenzene	548	13.3	26.7	"	"	"	---	103	34-122%	---	---	
2,4-Dinitrotoluene	555	13.3	26.7	"	"	"	---	104	48-126%	---	---	
2,6-Dinitrotoluene	530	13.3	26.7	"	"	"	---	99	46-124%	---	---	
Benzoic acid	421	167	333	"	"	1070	---	39	5-140%	---	---	
Benzyl alcohol	614	6.67	13.3	"	"	533	---	115	29-122%	---	---	
Isophorone	547	3.33	6.67	"	"	"	---	103	30-122%	---	---	
Azobenzene (1,2-DPH)	484	3.33	6.67	"	"	"	---	91	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	546	33.3	66.7	"	"	"	---	102	60-121%	---	---	
3,3'-Dichlorobenzidine	1400	13.3	26.7	"	"	1070	---	132	22-121%	---	---	Q-29
1,2-Dinitrobenzene	545	33.3	66.7	"	"	533	---	102	44-120%	---	---	
1,3-Dinitrobenzene	529	33.3	66.7	"	"	"	---	99	42-127%	---	---	
1,4-Dinitrobenzene	538	33.3	66.7	"	"	"	---	101	37-132%	---	---	
Pyridine	491	6.67	13.3	"	"	"	---	92	5-120%	---	---	
Benzo(e)pyrene	572	1.33	2.67	"	"	"	---	107	40-125%	---	---	
Perylene	571	1.33	2.67	"	"	"	---	107	"	---	---	

Surr: Nitrobenzene-d5 (Surr)	Recovery: 99 %	Limits: 37-122 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	91 %	44-115 %	"
Phenol-d6 (Surr)	111 %	33-122 %	"
p-Terphenyl-d14 (Surr)	105 %	54-127 %	"

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Philip Nerenberg, Lab Director

Hahn and Associates 434 NW 6th Ave. Suite 203 Portland, OR 97209	Project: Siltronic RI-Doane Creek Project Number: 5237-10dc Project Manager: Rob Ede	Reported: 12/12/17 08:59
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QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6031018 - EPA 3546						Soil						
LCS (6031018-BS1)						Prepared: 03/31/16 11:53 Analyzed: 03/31/16 17:45						
EPA 8270D												
<i>Surr: 2-Fluorophenol (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 35-115 %</i>		<i>Dilution: 1x</i>						
<i>2,4,6-Tribromophenol (Surr)</i>		<i>91 %</i>		<i>39-132 %</i>		<i>"</i>						

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434 NW 6th Ave. Suite 203
 Portland, OR 97209

Project: **Siltronic RI-Doane Creek**

Project Number: 5237-10dc
 Project Manager: Rob Ede

Reported:
 12/12/17 08:59

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6031018							
A6C1134-02RE1	Soil	EPA 8270D	03/30/16 11:00	03/31/16 14:08	15.25g/2mL	15g/2mL	0.98
A6C1134-04RE1	Soil	EPA 8270D	03/30/16 11:40	03/31/16 14:08	15.43g/2mL	15g/2mL	0.97
A6C1134-06	Soil	EPA 8270D	03/30/16 12:15	03/31/16 14:08	15.46g/2mL	15g/2mL	0.97
A6C1134-08RE1	Soil	EPA 8270D	03/30/16 13:00	03/31/16 14:08	15.33g/2mL	15g/2mL	0.98
A6C1134-10RE1	Soil	EPA 8270D	03/30/16 14:15	03/31/16 14:08	15.41g/2mL	15g/2mL	0.97
A6C1134-12	Soil	EPA 8270D	03/30/16 14:16	03/31/16 14:08	15.43g/2mL	15g/2mL	0.97
A6C1134-14RE1	Soil	EPA 8270D	03/30/16 15:00	03/31/16 14:08	15.36g/2mL	15g/2mL	0.98
A6C1134-16RE1	Soil	EPA 8270D	03/30/16 15:30	03/31/16 14:08	15.29g/2mL	15g/2mL	0.98
A6C1134-18RE1	Soil	EPA 8270D	03/30/16 16:00	03/31/16 14:08	15.16g/2mL	15g/2mL	0.99
A6C1134-20	Soil	EPA 8270D	03/30/16 16:10	03/31/16 14:08	15.25g/2mL	15g/2mL	0.98



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Notes and Definitions

Qualifiers:

Q-29 Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- *** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).



Hahn and Associates
434 NW 6th Ave. Suite 203
Portland, OR 97209

Project: **Siltronic RI-Doane Creek**
Project Number: 5237-10dc
Project Manager: Rob Ede

Reported:
12/12/17 08:59

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HAHN AND ASSOCIATES, INC. Environmental Management 434 NW 6th Avenue, Suite 203 - Portland, OR 97209 (503) 786-0717 - Fax: (503) 227-2299		APEX Laboratories Tigard, Oregon		Lab Project No.																	
Project Manager: Rob Ede Project No: 5237-10dc Project Name: Siltronic RI - Doane Creek Collected by: Ben Uhl / Jane Kern		Liquids with Sediment Sample Soil Phase Multi-Phase Sample Soil (Dry weight) Soil (Dry weight)		Samples Received at 4°C (Y or N), Appropriate Containers Used (Y or N) Provide Preliminary Results.																	
Sample Number Prefix: 5237-160330-DC - Analyte EDD and Full Data Validation Package - Target MDLs as per Philip N. - Metals = aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, sodium, silver, thallium, vanadium, zinc 3 day turn around time for Dr. Gx+BTEX		Analytes to be Performed		Remarks																	
Lab ID	Sample #	Date	Time	Sample Description	Matrix	Number of Containers	SVOCs (Full List) by EPA Method 8270D	LL PAHs and Homologs by EPA Method 8270D/8270D-M	Soot Carbon by EPA Method 9050 mod	TOC by EPA Method 5310	Sulfate by EPA Method 3762 mod	Sulfate by EPA Method 9056	Ammonia by SM 4500 mod	Total Cyanide by EPA Method 9014	Thiocyanate by SM 4500 mod	Metals by EPA Method 8020	Diesel and Oil-Range TPH by NWTFH-DX	TPH-Gx+BTEX	EPH by NWTFH-EPH	VPH by NWTFH-VPH	VOCs by EPA Method 8220B
	EMB033G	30-Mar-16	11:00	Soil Embankment (2.5)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB033	30-Mar-16	11:00	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB033G	30-Mar-16	11:40	Soil Embankment (1.5)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB032	30-Mar-16	11:40	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB030G	30-Mar-16	12:15	Soil Embankment (2.5)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB029	30-Mar-16	12:15	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB028G	30-Mar-16	13:00	Soil Embankment (2.0)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB028	30-Mar-16	13:00	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB056G	30-Mar-16	14:15	Soil Embankment (1.5)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB056	30-Mar-16	14:15	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB055G	30-Mar-16	14:16	Soil Embankment (1.5)	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	EMB055	30-Mar-16	14:16	Soil Embankment (0-3.5)	Soil	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reanalyzed by: Ben Uhl	Company: HAHN & ASSOC	Date: 3/31/16	Time: 10:11	Company: APEX	Company: APEX	Date: 12/12/17	Time: 08:59	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX	Company: APEX

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Philip Nerenberg

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434 NW 6th Ave. Suite 203
Portland, OR 97209

Project: **Siltronic RI-Doane Creek**
Project Number: 5237-10dc
Project Manager: Rob Ede

Reported:
12/12/17 08:59

Handwritten: Acl 1134

Laboratory		APEX Laboratories Tigard, Oregon																				
Hahn and Associates, Inc. Environmental Management 434 NW 6th Avenue, Suite 203 - Portland, OR 97209 (503) 795-2717 • Fax (503) 227-2209		Lab Project No.:																				
Project Manager Rob Ede		Test Method																				
Project No. 5237-10dc		Test Specimen																				
Project Name Siltronic RI - Doane Creek		Test Severity																				
Collected by Ben Lhl / Jane Kerin		Test Date (month)																				
Sample Number Prefix: 5237-160330-DC		Matrix																				
- Anchor EDD and Full Data Validation Package - Target MDLs as per Philip N. - Metals = aluminum, antimony, arsenic, barium, beryllium, manganese, mercury, selenium, silver, sodium, strontium, vanadium, zinc \$ day turn around time for D6, Gx+BTEX																						
Lab ID	Sample #	Date	Time	Sample Description	Matrix	Number of Containers	SVOCs (Full List) by EPA Method 8270D	LL Pesticides and Herbicides by EPA Method 8270D/8270D-M	Soot Carbon by EPA Method 9060 mod	TOC by EPA Method 5310	Sulfate by EPA Method 378.2 mod	Sulfate by EPA Method 9056	Ammonia by SM 4500 mod	Total Cyanide by EPA Method 9014	Thiocyanate by SM 4500 mod	Metals by EPA Method 6020	Diesel and Oil-Range TPH by NWTPH-DX	TPH-Gx+BTEX	EPH by NWTPH-EPH	VPH by NWTPH-VPH	VOCs by EPA Method 8260B	Remarks
	EMB051G	30-Mar-16	15:00	Soil Embankment (1.5')	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	RUSH
	EMB051	30-Mar-16	15:00	Soil Embankment (0-3.5')	Soil	6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB050G	30-Mar-16	15:30	Soil Embankment (1.5')	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB050	30-Mar-16	15:30	Soil Embankment (0-3.5')	Soil	6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB050G	30-Mar-16	15:00	Soil Embankment (1.5')	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB050S	30-Mar-16	15:00	Soil Embankment (0-3.5')	Soil	6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB035G0	30-Mar-16	15:10	Soil Embankment (1.5')	Soil	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	EMB035D	30-Mar-16	15:10	Soil Embankment (0-3.5')	Soil	6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Submitted by: <i>Ben Lhl</i> Date: 3/31/16 Company: HAHN AND ASSOCIATES, INC.					Received by: <i>J. Sullivan</i> Date: 10/10/17 Company: Apex																	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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